

EXPRESS MAIL CERTIFICATE

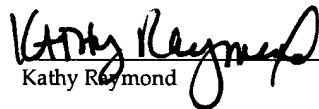
RECEIVED
JUL 25 2003
TC 1700

Express Mail Certificate No. EV268203996US

I hereby certify that the *attached* correspondence comprising:

1). Declaration under 37 CFR §1.131, Declaration by Eddie E. Scott of Prior Invention by Robin R. Miles, Kerry A. Bettencourt, and Christopher K. Fuller to Overcome Cited Patent (5 pages) w/ attachments (55 pages), 2). Return postcard is being deposited with the United States Postal Service as "Express Mail Post Office to addressee" under 37 CFR 1.10 on the date indicated below in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

July 13, 2003


Kathy Raymond

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant :	Robin R. Miles, et al.	Docket No. :	IL-10632
Serial No. :	09/733,857	Art Unit :	1753
Filed :	December 8, 2000	Examiner :	Alexander Stephan Noguerola
For :	DIELECTROPHORETIC CONCENTRATION OF PARTICLES UNDER ELECTROKINETIC FLOW		

DECLARATION UNDER 37 CFR §1.131

Declaration by Eddie E. Scott of Prior Invention by Robin R. Miles,
Kerry A. Bettencourt, and Christopher K. Fuller to Overcome Cited Reference

Commissioner of Patents and Trademarks
Alexandria, VA 22313-1450

Dear Sir:

I, Eddie E. Scott, hereby declare that:

- (1) I am a citizen of the United States and a resident of Danville,
California;
- (2) My education includes: Bachelor of Science Degree, University of
Wyoming; Master of Science Degree, University of Texas at Dallas; Juris Doctor
Degree, University of Wyoming; Patent Office Academy, Basic and Advanced,
United States Patent and Trademark Office, Washington, D. C.;

(3) I am an active member of the State Bar of California, an inactive member of the State Bars of Texas and Wyoming, and I am registered to practice before the United States Patent and Trademark Office;

(4) I am employed by the University of California, at the Lawrence Livermore National Laboratory, Livermore, California, as Assistant Laboratory Counsel, having been employed by the University of California, at the Lawrence Livermore National Laboratory from May 1, 1999 to the present, and I am empowered to act on behalf of The Regents of the University of California, the owner of the subject application;

(5) I am the attorney representing the inventors Robin R. Miles, Kerry A. Bettencourt, and Christopher K. Fuller (The Inventors), in the subject patent application;

(6) In an Office Action mailed 05/08/2003 the Examiner rejected the claims in the subject patent application over the McBride et al Reference, United States Patent No. 6,296,752 issued October 2, 2001 from an application filed June 4, 1999, therefore, June 4, 1999 is the filing date of the application from which the McBride et al Reference matured;

(7) I have obtained copies of certain documents (The Documents) maintained in the ordinary course of business of the University of California, the Lawrence Livermore National Laboratory, and the United States Department of Energy (DOE) and I am one of the custodians of The Documents; copies of the documents are attached hereto as Attachments; The Documents show that The Inventors, Robin R. Miles, Kerry A. Bettencourt, and Christopher K. Fuller, made the invention described and claimed in the subject patent application (The Invention) in this country prior to June 4, 1999 and continuously worked on testing, developing, and patenting The Invention during the period from the time when they made the first written description of The Invention and disclosed

The Invention to others until their patent application was filed on December 8, 2000 (The Time Period);

(8) The Inventors, Robin R. Miles, Kerry A. Bettencourt, and Christopher K. Fuller completed a "RECORD OF INVENTION" a photostatic copy of which is attached hereto as Attachment A," which in the Conception of the Invention Section XI, contains an entry for the "Conception Date" and an entry for "First Written Description," and in the Reduction to Practice of the Invention Section XII, contains an entry for the "Date of Operation and Testing;" the dates on the photostatic copy of ATTACHMENT A have been blacked out, however, dates showing that The Inventors made The Invention prior to June 4, 1999 are dates prior to June 4, 1999; that The Inventors conceived The Invention in this country are dates prior to June 4, 1999; that The Inventors reduced The Invention to practice in this country are dates prior to June 4, 1999, and dates showing that The Invention was continuously worked on during The Time Period are dates during The Time Period;

(9) The Inventor, Robin R. Miles made drawings, made written descriptions, and made tests, of The Invention in this country prior to June 4, 1999, ATTACHMENT B is photostatic copy of "pages from Robin Miles' Laboratory Notebook" showing The Inventors made drawings, made written descriptions, and made tests of The Invention in this country prior to June 4, 1999;

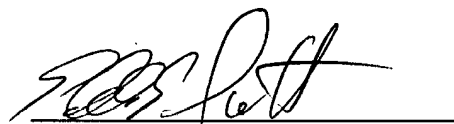
(10) The Inventor, Kerry A. Bettencourt made drawings, made written descriptions, and made tests, of The Invention in this country prior to June 4, 1999, ATTACHMENT C is photostatic copy of "pages from Robin Miles' Laboratory Notebook" showing The Inventors made drawings, made written descriptions, and made tests of The Invention in this country prior to June 4, 1999;

(11) During The Time Period the Industrial Partnership and Commercialization Office (IPAC) of the Lawrence Livermore National Laboratory held monthly Invention Review Meetings and The Invention was reviewed at the Invention Review Meetings during The Time Period; IPAC continuously reviews inventions and prioritizes inventions for patent application filing; The Invention was reviewed and prioritized by IPAC during The Time Period; photostatic copies of a database entries showing that The Invention was reviewed by IPAC during The Time Period is attached as Attachment D, the dates on the photostatic copy have been blacked out; however, dates showing that The Inventors made The Invention prior to June 4, 1999 are dates prior to June 4, 1999, and dates showing that The Invention was continuously worked on during The Time Period are dates during The Time Period;

(12) During The Time Period the Office of Laboratory Counsel (OLC) of the Lawrence Livermore National Laboratory, held monthly Invention Review Meetings and The Invention was reviewed at the Meetings during The Time Period; the Office of Laboratory Counsel (OLC) also held monthly meetings with the Industrial Partnership and Commercialization Office (IPAC) during The Time Period and The Invention was reviewed at the Meetings; OLC prepares patent applications for filing according to a priority list; the parent application of the subject application was prepared by OLC covering The Invention according to the priority list; photostatic copies of a database entries showing that The Invention was reviewed and a patent application filed by OLC during The Time Period is attached as Attachment E, the dates on the photostatic copy have been blacked out; however, dates showing that The Inventors made The Invention prior to June 4, 1999 are dates prior to June 4, 1999, and dates showing that The Invention was continuously worked on during The Time Period are dates during The Time Period;

(13) During The Time Period The Invention was continuously worked on; photostatic copies of documents maintained in the ordinary course of business of the University of California, the Lawrence Livermore National Laboratory, and the United States Department of Energy (DOE) showing that The Invention was continuously worked on during The Time Period are attached as Attachments F; the dates on the photostatic copies have been blacked out; however, dates showing that The Inventors made The Invention prior to June 4, 1999 are dates prior to June 4, 1999, and dates showing that The Invention was continuously worked on during The Time Period are dates during The Time Period;

(14) I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

A handwritten signature in black ink, appearing to read "Eddie E. Scott", written over a horizontal line.

(Signature)

Declarant: Eddie E. Scott

Dated: July 18, 2003
Livermore, California

University of California



RECORD OF INVENTION

Pag 4

LLNL File No.

IX. Inventor Information

Inventor's Permanent Home Address (Please attach a separate sheet for additional inventors.)

Full Name	Citizenship	Street Address	City, State, Zip Code
Robin R. Miles	USA	826 Cherokee Drive	Livermore, CA 94550
Kerry Bettencourt	USA	11873 West Vomic Road	Dubin, CA. 94568
Christopher Fuller	USA	1134 Portola Meadows Apt. 216	Livermore, CA 94550

X. Funding Source

Funding Source or Project Under Which the Invention Arose (Include subcontracts, CRADAs, international agreements, work for others, or special project information.):

Source Manager	Phone #	Is funding presently being provided for development of your invention?	Yes	No
Pam Richmond	2-4965		X	
LLNL Acct #	B&R #	Please state the source of funds (if same as above, please so state):		
8989-76	NOI			
Subcontract #	DOE Program Code	Do you reasonably expect future funding from the current source or other sources?	Yes	No
CRADA #	Work for Others #	If yes, what is that source?		

XI. Conception of the Invention

Conception Date	Conception Place		
	Livermore CA.		
Earliest documentation of your invention (please provide date and identify the document): LDRD proposal		First Sketch or Drawing Date	First Written Description Date 2/98
Names of Witnesses or others with knowledge of facts relating to conception (preferably at least 2):			
Full Name	Organization	Telephone Number	
Ray Mariella	LLNL	2-8905	
Harold Ackler	LLNL	2-6235	

XII. Reduction To Practice of the Invention

Date first model completed	Date of operation and testing	Place of test
		LLNL, Livermore CA
Results of testing:		
Worked.		
Witnesses or others with direct knowledge of test (preferably at least 2):		
Full Name	Organization	Telephone Number
Kerry Bettencourt	LLNL	2-7371
Robin Miles	LLNL	2-5048
Chris Fuller	LLNL	4-5185

XIII. Invention Use and Disclosure

Has the invention been put into use?	Yes	No	If yes, explain:
		<input checked="" type="checkbox"/>	
Has the invention been disclosed to non-LLNL personnel?	Yes	No	If yes, to whom and when? Provide name(s) and date(s):
		<input checked="" type="checkbox"/>	
If yes, was the disclosure done under a non-disclosure agreement?	Yes	No	
			planning to write paper Jan '00

XIV. I/We believe myself/ourselves to be the first and original inventor(s) of the above-described invention.

Inventor Signature	Date	Witness Signature	Date
<i>[Signature]</i>		<i>[Signature]</i>	
<i>[Signature]</i>		<i>[Signature]</i>	
<i>[Signature]</i>		<i>[Signature]</i>	

XV. Classification Review

Basis for unclassified release:			
<input checked="" type="checkbox"/>	Outside scope of AEA and EO		
	CG-DAR-1, Topic(s):		
	Other Guide(s):		
	Topic(s):		
UCNI	Yes	No	If YES, Guide:
Authorized Derivative Classifier -- Name and Title		Signature	
<i>M. D. POCHA SECTION LEADER</i>		<i>M. D. Pocha</i>	
Confirming Reviewer -- Name		Signature	

XVI. For LLNL Patent Group Use Only

Possible Statutory Bars	
Publication	
Public Use/Sale	
Recommended Filing Date Due to Possible Statutory Bars	
Preliminary Review By:	Date

Send the completed and signed form to the Patent Group at L-703

LLNL File No. FL 10632

XIII. Invention Use and Disclosure

Has the invention been put into use?	Yes	No	If yes, explain:
		<input checked="" type="checkbox"/>	
Has the invention been disclosed to non-LLNL personnel?	Yes	No	If yes, to whom and when? Provide name(s) and date(s):
		<input checked="" type="checkbox"/>	
If yes, was the disclosure done under a non-disclosure agreement?	Yes	No	
			<i>planning to write paper</i>

XIV. I/We believe myself/ourselves to be the first and original inventor(s) of the above-described invention.

Inventor Signature	Date	Witness Signature	Date
<i>R. R.</i>		<i>Sheryl Stockton</i>	
<i>Kyle Brith</i>		<i>Don</i>	
<i>Chad R. Zeller</i>		<i>S. W. Asarabadi</i>	

XV. Classification Review

Basis for unclassified release:			
<input checked="" type="checkbox"/>	Outside scope of AEA and EO		
	CG-DAR-1, Topic(s):		
	Other Guide(s):		
Topic(s):			
UCNI	Yes	No	If YES, Guide:
Authorized Derivative Classifier -- Name and Title		Signature	
<i>M. D. POCHA SECTION LEADER</i>		<i>M. D. Pocha</i>	
Confirming Reviewer -- Name		Signature	
<i>Wm. A. BOLLINGER</i>		<i>Wm. A. Bollinger</i>	

XVI. For LLNL Patent Group Use Only

Possible Statutory Bars	
Publication	
Public Use/Sale	
Recommended Filing Date Due to Possible Statutory Bars	
Preliminary Review By:	Date

Send the completed and signed form to the Patent Group at L-703

RECEIVED

RECORD OF INVENTION

LLNL - I. P. L. G.

LLNL File No.

IL-10632

This invention was made in the course of or under prime Contract No. W-7405-ENG-48 between the U.S. Department of Energy and the University of California. This Record of Invention is prepared for the Office of the Assistant General Counsel for Patents, U.S. Department of Energy.

I. Title of the Invention

Dielectrophoretic Concentration of Particles under Electrokinetic Flow

II. Inventor Information

LLNL Inventor(s) (F M L)	Title/Position	Directorate	Payroll Acct	Phone #	Mail Stop
Robin Miles	Engineer	Engineering	9782	2-5048	L-223
Kerry Bettencourt	Chemistry Associate	Chemistry	9811	2-7371	L-223
Chris Fuller	Engineer	Engineering	9782	4-5185	L-223

III. Abstract

The use of dielectrophoresis to collect particles is well known when operating under pressure driven flow. However, to our knowledge, no one else has documented such collection under the conditions of electrokinetically-driven flow. Electrokinetically-driven flow is an important technique for moving fluids and sample around a microfluidic bio-chemical assay chip. We have now shown that it is possible to reap the advantages of dielectrophoretic manipulation in this regime.

IV. Uses of the Invention

List past uses, current uses and potential uses for your invention
LLNL or Government uses or possibilities for use:

Dielectrophoresis is used to effect motion on polarizable particles within a non-uniform electric field. Positive dielectrophoresis can be used to concentrate particles in areas of high electric field gradients. This can be used to eliminate the use of centrifuging to concentrate biological samples. Negative dielectrophoresis can be use to discriminate between various types of biological particles.

Commercial or other uses or possibilities for use:

Companies using microfluidic devices to perform analysis would be interested in using this device to concentrate the sample prior to testing.

V. Documents Describing the Invention

Documents, publications, and presentations describing the invention that you have published or prepared for publication, or presented on the subject. Also include presentations and publications planned within one year from now. Please attach a copy of preprints, articles, or viewgraphs.

Title/Subject	Date	Publication #
None.		

VI. Documents Describing Prior Art (Please include copies of these documents.)

Related Documents (including patents, other publications) Please include patent numbers, authors, title, publication date, etc.

Many publications discuss dielectrophoretic concentration, but none that we know about use electrokinetic/electroosmotic-driven flow.

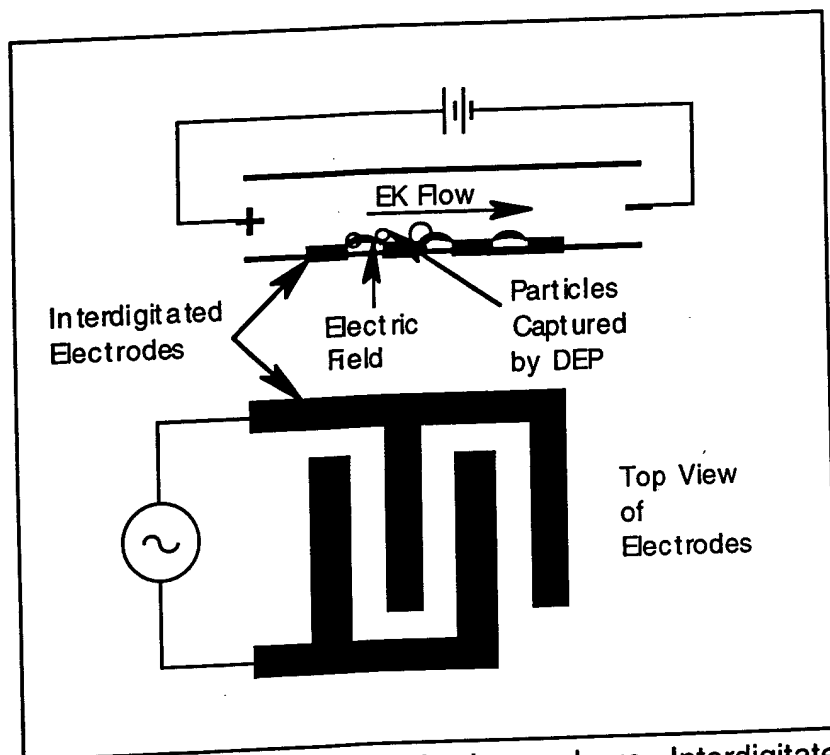
VII. Background

Background of the invention, including technical problems addressed by it:

Microfluidic devices are most useful when operating with small sample volumes. Small sample volumes result in increased reaction times and reduced reagent use which means significantly reduced costs for the multitude of tests that one desires to conduct on any given sample. Dielectrophoretic concentration of the sample is a useful method for achieving these goals. Dielectrophoresis is attractive on the microfluidic scale because the forces become significant and useful at dimensions of less than a 1 mm. Electrokinetic/electroosmotic flow is also useful in these devices because it obviates the need for micropumps and microvalves. The combination of dielectrophoresis and electrokinetic/electroosmotic flow would not normally be an obvious choice since one might think that the two electric fields and their associated double layers may interfere with each other. Also, DEP collection works best in the slow boundary-layer flow associated with pressure-driven flow. We have found that particles can still collect even in the more uniform flow field associated with electroosmotic flow. The 5-10 nm double charge layer associated with establishing electroosmotic flow does not seem to interfere or be interfered with by the DEP field in a significant way.

VIII. Invention Description

Description of the invention (you may also attach a paper). Please include a sketch of the invention, if possible.



A schematic of the device is shown above. Interdigitated electrodes are patterned on the inner surface of a microfluidic channel. Glass is the preferred material for the microfluidic channel because it promotes electroosmotic flow, particularly if preconditioned with sodium hydroxide. A DC voltage is applied across the ends of the channel to initiate the electrokinetic/electroosmotic flow field. An AC voltage is applied across the interdigitated electrodes to set up a non-uniform electric field capable of trapping particles using the dielectrophoretic force. Particles are swept down the channel electrokinetically and are trapped within the field established by the interdigitated electrodes. The particles can be released when the voltage to the interdigitated electrodes is released.

EO flow + electrode.

400 V means ~ 10 cm,

3.8 V, 1 kHz 1 + 5 μ m beads: - PH B.O. solute
pre prep w/ NaOH sol'n.

rather gentle w/ Nitro.

fair amount of bubbles \rightarrow EO stopped bubbles on
electrodes in cath.

step ① ④ Nothing

turn on EO / turn on DEP.

gaskets seen bubbles? no? (o) tag here

② nothing

DEP increase field. - boiling

change electrode set

collect @ 3.8 V \rightarrow good collection

start EO field. , 500 V

stuff still on edges after flow

turn off one side \rightarrow collect + oth side

release \rightarrow + re collect

EO Flow then DEP \rightarrow stuff on electro but not
near edges. \rightarrow release.

low stopper

300 V \rightarrow set voltage, put on field
3.8 V, 1 kHz \rightarrow demonstrated collect & release
w/ FO flow.

bubble at entrance stop flow \rightarrow

a few small
~~the~~ generated bubble at digitized electrodes

\rightarrow run 2, 100 V 3.5 V 1 kHz

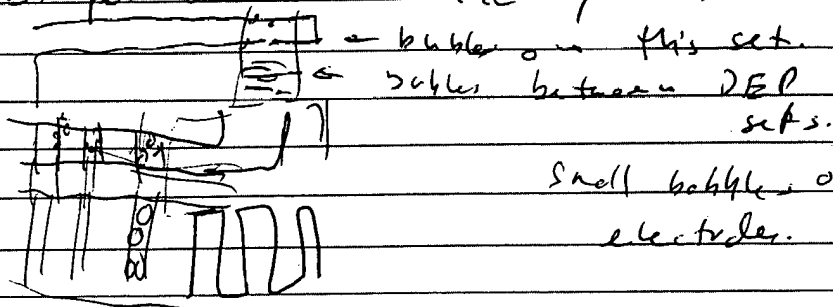
pH 8.0, 10% of time .05% = .005%

then 200 V 3.4 \rightarrow 3.5 V

more bubbles \leftarrow then 400 V 3.5 V
bubbles.

\leftarrow bubble 500 V \rightarrow 3.8 V \rightarrow the data froths
mediately further \rightarrow bubbles
on all sets of electrodes \rightarrow not
just DEP set.
conduct electrodes mostly.

bubbles seen on conduct electrodes to
DEP pair on other lane w/ heater



next section 100V

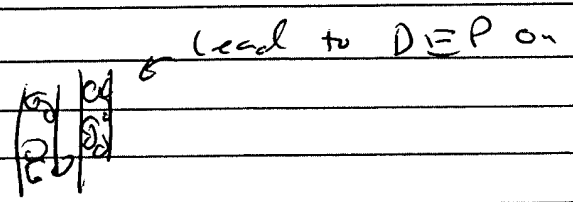
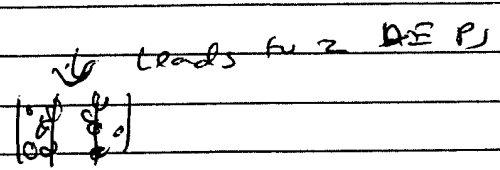
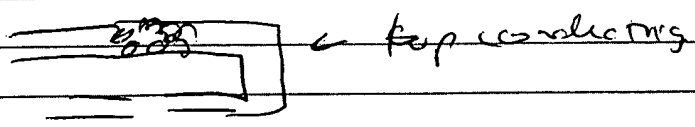
2.5V bounce cc start cap

3.1V 5 Hz

1.2V release

2.2V reception
small bubble network

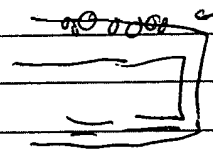
conduit electrode bubble



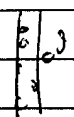
charged electrode at top of used DE P

set 100V, water for bubbles & no DE P

first start top of conductive screen 2-3m
in file bubbles.



also fine wiring in nearest cathode



Green dye w/ B_2 , 100V 1 kHz \rightarrow 10 kHz
up to 5V

B_2 100V, 3.8V 10 kHz

pure electrodes
100V 1 kHz 1/2 beads
8V

no good connected
bubble still at incoming sensor

\rightarrow Pt electrodes 10/10

100V

6V 1 kHz
can't see when capture

200V

\rightarrow boiling

bubbles \rightarrow tip electrode, ^{or part of} top of 1st REP,
conduits on sides
not by heater

ATTACHMENT C

85

electro-osmotic flow

mixed 10ml .1M NaCl with
1 drop 1μm beads

When device hooked to high
voltage resistance is ~200 KΩ
(with solution on place)

Injected solution/beads in one
hole, plugged all but 2 others
which were filled with solution/
beads. After infusing/withdrawing
several times got resistance
down to 50 KΩ but then kept
climbing. It turned out solution
was leaking into other set of flow
channels. Sealed them off.

At start of tape resistance
measured ~.6 meg

EO Anodically bonded
port Ti/Pt, no nitride resistance
measures 800 KΩ

.1M NaCl with 1μ beads - same
case as above

Applied 500 V saw minimal motion
then power supply tripped off. Not
all beads moving only 1 layer

Maybe getting electrolysis/hydrolysis
lets test

Small beaker of .1M NaCl put
electrodes in solution - measured
resistance

It's very erratic with a low ≈ 3 Meg ohm. Every time electrode was removed then put back in solution the value changed substantially. 3 Meg ohm ± 4 .

Applied 500 V to beaker with 1M NaCl in it. Within 1-2 sec foam & gas coming off neg elec small bubbles formed at the anode. Beaker had ~ 14 of solution in it.

Let's try lower voltage - 250 V
- Same results

Let's try a more dilute NaCl solution 10 ml H_2O 2 ml 1M NaCl.
- Same results but after a few seconds power supply tripped off. (power supply trips at 400 mA)

Testing ~~CR~~ Pt heater ~~should be~~
~~with have to look in 20 ohm range for~~

There should be $\sim 2000 \Omega$ Pt
Resistance of device $\sim 330 \Omega$

Voltage	Temp
10V	29°C
15V	36°C
20V	40-44°C
24V	70-72°C
25V	

Above data not reproducible

MONTHLY REPORT

JULY 2003

ATTACHMENT D

Directorate

Engineering

Program Bob Langland

Month

Patents Al Thompson

IP&C Bert Weis
Amal Moulik

Specialist

No Interest by IPAC

Paul Martin

Account Nos.

8989-76

- ☐ Requires Review
☐ Inactivate
☐ No Interest
☐ Priority 1
☐ Refer to DOE
☒ Waive & File
☐ Waive

IL Number

Inventor/Title

10632

Robin Miles, Kerry
Bettencourt, Chris FullerDielectrophoretic
Concentration of Particles
under Electrokinetic Flow

Rights Requested

8/4/2000

Rights Granted

8/23/2000

Review Comments

Priority #

1

Revisits

Revisit March00.

AM-Don't know what is being
claimed. Sent Robin some open literature.
RI -RevisitAM-Have not heard back from
Robin.

IM-This is good technology.

BL-Would like to have this case
bundled with other cases for possible outside
patenting. Could put us in a better position to go
to DARPA for funding. Robin appears to be very
aware of what's happening in this area.
AM-Haven't heard back from Robin.

Provisional

Filing Date

KO-BIP for the Lynntech CRADA.
Will be nominated for the Top 20.

Priority List

Review Action Items

Revisit March00.
AM-Will get hold of
inventors and get back.
BW-Revisit May00.Revisit June00.
JM-Nominate to the
Patent Priority list.BL-Will contact Robin Miles
and have her contact Amal.
Priority 1.

Waive and File - Sara

Microfluidics

Top 20 Program Priority Listing

IL#	Directorat	Titl	Invent rs
10632	Engineering	Dielectrophoretic Concentration of Particles under Electrokinetic Flow	Robin Miles, Kerry Bettencourt, Chris Fuller
Pri rity	1		

Patent Priority List - Scoresheet

High 20 Date:

IL #: 10632

Directorate: Engineering

Inventors: Robin Miles, Kerry Bettencourt, Chris Fuller

Title: Dielectrophoretic Concentration of Particles under Electrokinetic Flow

Non-LLNL

Inventors:

(Check all that apply)

High 20 Priority:

1

☒ X

R commended for the Top 20

☒ X

Important technical invention

☒ X

Commercial value

☒ X

Significant Programmatic interest

☒ X

Important LLNL portfolio (e.g. Aerogels)

☒ X

Proof of concept exists

☒ X

CRADA BIP

☐

CRADA Subject Invention

☐

License executed

☐

License in negotiation

☒ X

Commercial interactions/marketing

☐

Other time factors (bar date, provisional)

☐

Other (specify)

Bar Date:

Practical filing date:

1

Additional comments (Specialist/Program Rep)

BIP for CRADA TC-2016-00 with Lynntech.

Robin Miles, LLNL Inventor leaving the Laboratory to join Cepheid.

Engineering's Microfluidics portfolio

Selected by IPAC for Top 20 (Weis/Dunipace)

Added to Top 20 List

Search Completed

Portfolio

Microfluidics

Business Specialist:

Paul Martin

IL- 10632	IL Type	N n-Lab Employee	C nt. App.	Assigne UC/IP&C
AIPA Applies	RL-	S-94234	UC-	
Attorney	Carnahan/Scott		Date Attorney Assigned	
ROI Title	Dielectrophoretic Concentration of Particles under Electrokinetic Flow			
Inv ntors	Robin Miles, Kerry Bettencourt, Chris Fuller		Non-LLNL Inventors	
Patent Status	Final Office Action--resp. due (ns) First Office Action--resp. due Response sent (kr). Patent Priority list 7/25/00 Abervant status until Application in preparation. Patent Application sent to PTO			
Patent App. Title	Dielectrophoretic Concentration of Particles under Electrokinetic Flow			
Case Combined With				
R lated Cases				
Attorney C mments				
Miscellaneous Information	Home no. 925-362-8307. Chris Fuller new address: 1145 Hillcrest Ct. Livermore, wk; 408-739-7277, hm 443-9242.			
Account Nos.	8989-76	Directorate	Engineering	BandR No. YN01
No Interest by IPAC		Inactivated by IPAC		Inactivated by DOE
Abandoned by		Date Abandoned		
Disclosure Submitted		Application Authorized		Application Requester IP&C
Rights Requested		Type Requested	Class Waiver W(C)	Rights Granted
Confirmatory License		Directorate Priority	1	Application Mailed
Provisional Serial No.		Provisional Filing Date		Priority
Additional Provisional Serial No./Filing Date		check priority date		Export Control
Serial No.	09/733857	Filing Date		Bar Date 1
Patent No.		Issue Date		Bar Date 2
		check priority date		Bar Date 3
Publication Cite		Publication Date		EUVL
Portfolio	Microfluidics			
				EUVL Assignee

IL Number

10632

DUE DATES

IDS Due

IDS Sent

IL Number

10632

LLN Patent Group - Patent Tracking

Restriction Req.
First Office Action
Second Office Action
Third Office Action
Fourth Office Action
Final Office Action
Notice of Appeal Due
Appeal Brief Due

Restriction Req. Sent
First OASent
Second OASent
Third OASent
Fourth OASent
Final OASent
Notice of Appeal Sent
(Check Response Due)
Appeal Brief Sent

CPA Filed RCE filed
1st CPA OA 1st CPA OA Sent 1st RCE OA 1st RCE OA Sent
2nd CPA OA 2nd CPA OA Sent 2nd RCE OA 2nd RCE OA Sent
Final CPA OA Final CPA OA Sent Final RCE OA Final RCE OA Sent

Notice of Allowance Notice of Allowance Sent
Notice of Allowability Notice of Allowability Sent

Response Due Multiple Due Dates ☐ FOA NOA

MAINTENANCE FEES

Three Yr Fee Paid Three Year Amount
Seven Yr Fee Paid Seven Year Amount
Eleven Yr Fee Paid Eleven Year Amount
Small Entity ☐ Yes ☐ No

IL Number 10632

IP&C INFORMATION

Licensee

Licensing Specialist

Paul Martin

Date Assigned

Search Requested Search Completed Search Sent To Robin Miles

Last Modified Date Last Modified By: Raymond3 Last Modified Time 7:27:49 AM

Patent Application U.S. Patent

DISCLOSURES, PATENT APPLICATIONS AUTHORIZED AND FILED

Direct rate/ AD	Account N .	IL#	Title	Invent r	Assignee	Sp cialist	Disclosure Submitted	Applicati n Auth rized
	8989-76	10632	Dielectrophoretic Concentration of Particles under Electrokinetic Flow	Robin Miles, Kerry Bettencourt, Chris Fuller	UC/IP&C			

*Disclosures assigned to DOE unless assignment requested by LLNL.

**UC/OTT Alameda is the Technology Transfer Office for The Regents

Cases Currently on the High 20

IL#	Title	Inventors	Added to List
10632	Dielectrophoretic Concentration of Particles under Electrokinetic Flow	Robin Miles, Kerry Bettencourt, Chris Fuller	

BUSINESS SENSITIVE, TREAT AS PROPRIETARY INFORMATION

Record #	Invention Title	Inventors	Filing Date	Patent Number	Issue Date
	Dielectrophoretic Concentration of Particles under Electrokinetic Flow	Robin Miles, Kerry Bettencourt, Chris Fuller			

Account N s.	8989-76					
Additional Provisional Serial	No. Filing Dat					
Agents File Nos.						
Appeal Brief Du						
Appeal Brief S nt						
Applicant						
Application Authorized						
Application Mailed						
Application Requester	IP&C					
Assignee	UC/IP&C					
Attorney	Carnahan/Scott					
Attorney Foreign	Scott					
Attorney Comments						
BandR No.	YN01					
Cas Combined with						
Confirmatory License						
Cont. App.						
Countries						
Date Att. Assign.						
Directorate Priority	1					
Disclosure Submitted						
Eleven Year Amount						
Eleven Yr Fee Due						
El ven Yr Fee Paid						
Filing Date						
Final OA Sent						
Final Office Action						
First OA Sent						
First Office Action						
For. Response Due						
Foreign Agents						
Foreign Status	IPAC notified us not to proceed with the					
Foreign Title						
Fourth OA Sent						
Fourth Office Action						
IDS Due						
IDS Sent						
IL Index Key	10632					
IL Number	10632					
IL suffix						
"						

IL Type						
Inactivated by DOE						
Inactivated by IPAC						
International Filing Date						
International Serial No.						
Inventors	Robin Miles, Kerry Bettencourt, Chris Fuller					
IPAC PCT Request						
Last Modified Date						
Last Person To Modify	Raymond3					
Last Modified Time	7:27:49 AM					
Licensee						
Miscellaneous Information						
Natl Appl. Nos.						
Notice of Allowability						
Notice of Allowability Sent						
Notice of Allowance Date						
Notice of Allowance Sent						
Notice of Appeal Due						
Notice of Appeal Sent						
Patent App. Title	Dielectrophoretic Concentration of Particles under					
Patent Issued Date						
Patent Number						
Patent Status	Final Office Action--resp due 8/8/2003 (ns) First Office					
PCT Due						
PCT I National Entry						
PCT II Demand Due						
PCT II Demand Filed						
PCT II National Entry						
Priority Date						
Provisional Filing Date						
Provisional PCT Due						
Provisional Serial No.						
Publication Cite						
Publication Date						
Related Cases						
Response Due						
Restriction Req. Sent						
Restriction Requirement						
Rights Granted Date						
Rights Requested Date						
RL Number						

ROI Title	Dielectrophoretic Concentration of Particles under						
S Number	94234						
S cond OA S nt							
Second Office Action							
S rial Number	09/733857						
S ven Y ar Amount							
Seven Yr Fee Due							
Seven Yr Fee Paid							
Third OA Sent							
Third Office Action							
Three Year Amount							
Three Yr Fee Due							
Three Yr Fee Paid							
Type Requested	Class Waiver W(C) 92-002						
UC number							
Patent Expiration Date							
For ign Patent No.							
Foreign Issue Date							
Prov. PCT Due Date							
Non-Lab Employee							
Modification Index	2003181.07274						
No Interest by IPAC							
High 20 Nominated Candidate							
High 20's List							
Omit	<input checked="" type="checkbox"/>						
Priority							
Bar Date 1							
Foreign Bar Date							
Bar Date 2							
Bar Date 3							
Bar Date Comments							
Portfolio	Microfluidics						
Abstract							
Int'l Search Report							
Written Opinion							
Response Sent							
Small Entity							
Int'l Pre Exam Rpt							
FOA NOA	FOA						
CPA Filed							
First CPA Office Action							

First CPA Office Action	
Second CPA Office Action	
Final CPA Office Action	
First CPA OA Sent	
Second CPA OA Sent	
Final CPA OA Sent	
EUVL	
EUVL Assignee	
Search Requested	
Search Completed	
Search Sent To	Robin Miles
For. Miscellaneous Info	
Prov PCT Request Sent	
PCT Request Sent	
Search Report Resp Sent	
ISA	
IPEA	
Request to Outside Counsel	
Supp Int'l Search Rpt Rec'd	
Supp Search Rpt Resp	
Int'l Pre Exam Resp	
Written Opinion Resp	
National Countries	
National Fees	
PCT Pub Date	
PCT Pub Sent Inv.	
AIPA Applies	
Non LLNL Inventors	
Multiple Due Dates	
Multiple Foreign Due Dates	
RCE filed	
First RCE Office Action	
First RCE Office Sent	
Second RCE Office Action	
Second RCE Office Sent	
Final RCE Office Action	
Final RCE Office Sent	
Patent Application	
U.S. Patent	



University of California
Lawrence Livermore National Laboratory
Intellectual Property Law Group

Mail Station: L-703
Extension: 2-0505

Interoffice Memorandum

TO: Bill Bollinger

FROM: Terry Contreras

A handwritten signature, likely of Terry Contreras, consisting of stylized initials.

SUBJECT: New Disclosure and Record of Invention
LLNL Case No.: IL- 10632

Please review the attached disclosure for both export control and classification purposes. When you have finished your review please sign the disclosure and return to me at L-703.



University of California
LAWRENCE LIVERMORE NATIONAL LABORATORY
Intellectual Property Law Group

Mr. William C. Daubenspeck
Office of Patent Counsel
Intellectual Property Law Division
Livermore, California 94550

SUBJECT: Invention Case No.: IL-10632
"Dielectrophoretic Concentration of Particles under Electrokinetic Flow"
By: Robin Miles, Kerry Bettencourt and Chris Fuller

Dear Mr. Daubenspeck:

Enclosed are the original and one copy of the combined Disclosure and Record of Invention in the subject case.

Very truly yours,

A handwritten signature in cursive script that reads "K Sudweeks".

Kjersti Sudweeks
Intellectual Property Law Group

Enclosure

cc: Penny Hennagir w/enc
IP&C Sara Sanders L-795 w/enc
Robin Miles L-223 w/enc
Kerry Bettencourt L-223 w/enc
Chris Fuller L-223 w/enc

Interdepartmental Letterhead

Mail Station L-312

LLNL - I. P. L. G.

EC-99-255

Ext: 4-3483

To: Terry Contreras, L-703

From: William R. Fritchie

Subject: Export Control Review for IL-10632 "Dielectrophoretic Concentration of Particles under Electrokinetic Flow"

Review of Regulations. An export control review of the subject technology was conducted using the following applicable regulations:

Nuclear Regulatory Commission (NRC). This technology is export controlled as Sensitive Technology under the NRC Regulations (10 CFR Part 110), dated Yes___ No_X_
[web site: http://www.access.gpo.gov/nara/cfr/waisidx_99/10cfr110_99.html]

Department of Energy (DOE). This technology is export controlled as Sensitive Technology under the DOE Regulations (10 CFR Part 810), dated Yes___ No_X_
[web site: http://www.access.gpo.gov/nara/cfr/waisidx_99/10cfr810_99.html]

Department of State (DOS). This technology is export controlled under the DOS International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130), dated Yes___ No_X_
[web site: http://www.access.gpo.gov/nara/cfr/waisidx_99/22cfrv1_99.html]

Department of Commerce (DOC). This technology is export controlled under the DOC Export Administration Regulations (EAR) (15 CFR Parts 730-774) dated Yes_X_ No___
[web site: http://www.access.gpo.gov/bxa/ear/ear_data.html]

Narrative. This technology is export controlled by the DOC EAR (15 CFR Part 774, Category 6, specifically ECCN EAR99), and requires no license for export, subject to the following caveat:

This technology may not be exported to individuals on the current Denied Persons List (15 CFR Part 764, Supplement 2) or to the presently embargoed countries of Cuba, Libya, North Korea, Iran, Iraq, Rwanda, Liberia, Somalia and Yugoslavia (15 CFR Part 746).

Separate license requirements may apply for the export of commodities associated with this technology. For additional licensing guidance, contact Lou Hill (Traffic/Shipping) at 424-4201.



William R. Fritchie
Classification Adviser

cc: Nancy Stone, L-703
Sara Sanders, L-795



University of California
LAWRENCE LIVERMORE NATIONAL LABORATORY
Intellectual Property Law Group

Ms. Janet Rego
Office of Patent Counsel
Intellectual Property Law Division
Livermore, California 94550

SUBJECT: Missing page

Dear Janet:

Janet: around December 28 (that is when letter was dated) you received these records of invention:

10627
10628
10629
10630
10631
10632 ✓
10633
10634

There was a sheet missing from them. The sheet that was missing is where our classification office (Bill Bollinger) signs. I am sending you the original signature and a copy for each of the ILs listed above. Sorry for the inconvenience.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'Terry Contreras'.

Terry Contreras
Intellectual Property Law Group

Enclosure



Department of Energy
Oakland Operations Office
Office of Chief Counsel
Intellectual Property Law Division

Livermore Office
P.O. Box 808, L-376
Livermore, CA 94550
(925) 422-4367
FAX (925) 422-8228

Janet G. Tulk, Laboratory Counsel, L-703

RECEIVED

Subject: DOE Patent Docket No.: S-94,234
LLNL Docket No.: IL-10632
Title: Dielectrophoretic Concentration of Particles under Electrokinetic
Flow
Inventor(s): Robin Miles et al.
Under DOE Contract No.: W-7405-ENG-48


LLNL - I. P. L. G.

The Laboratory's transmittal to this office on of the above-identified invention disclosure is acknowledged with appreciation. The invention disclosure has been assigned the above-indicated DOE Patent Docket (S) number. Your reference to this number in future communications with this office will be helpful.

Based on the information provided to DOE in the invention disclosure, the commercial rights to this invention are readily obtainable by the Laboratory during the first two years following disclosure of the invention to DOE under the provisions of the above contract. As set forth in Clause 7.7 of the contract, if the Laboratory wants the commercial rights to the invention, the Laboratory must elect to retain title within the two-year period. However, if public disclosure, use or sale of the invention has initiated the one year statutory period to apply for U.S. patent protection, the period for election of title is shortened by DOE to end 60 days before the end of the U.S. statutory period. Therefore, it is important for this office to be notified immediately about any public disclosure, use or sale.

In an effort to give the Laboratory as much latitude as possible to decide on commercialization of the invention, this office of DOE will hold the invention in abeyant status for a period of two years from the above date of invention disclosure. Generally during this abeyant status period, DOE takes no action on protecting the invention by the filing of a U.S. patent application. Instead DOE relies on the Laboratory to carefully evaluate the invention's potential and decide whether or not to obtain the commercial rights in the invention. If the Laboratory elects to retain title to the invention, the Laboratory must file a patent application within one year of the date of election plus any extensions granted by DOE but, in any event, before the expiration of any statutory bar period. However, during the two-year period for election, should the Laboratory decide not to retain title and inform DOE in writing, DOE will at that time evaluate whether the filing of a U.S. patent application is warranted to meet the Government's needs. If the Laboratory decides not to retain title to the invention, you are encouraged to notify DOE at your earliest convenience.

If there are any questions concerning this letter or DOE actions, please feel free to contact this office.


William C. Daubenspeck
Patent Attorney

cc: Karena McKinley, LLNL, L-795
Robin Miles, LLNL, L-223
Kerry Bettencourt, LLNL, L-223
Chris Fuller, LLNL, L-223

WCD:JLR:wkc



Lawrence Livermore National Laboratory
Industrial Partnerships & Commercialization

Janet G. Tulk
Laboratory Counsel
LLNL, L-703

Subject: DOE Case No. S-94234
LLNL Docket No. IL-10632
Invention Title: Dielectrophoretic Concentration of Particles under
Electrokinetic Flow
Inventors: Robin R. Miles, Christopher K. Fuller,
Kerry A. Bettencourt

Dear Ms. Tulk:

This letter is to request that you prepare and file a U.S. patent application for the above-referenced matter on behalf of The Regents of the University of California. A waiver concerning the subject invention has been prepared and is being submitted to DOE OAK. A copy is enclosed for your file. Foreign filing is not requested at this time but will be revisited at a future date. We ask that your office track the foreign file date(s) and keep us accordingly advised.

Please proceed with this application for filing with the U.S. Patent Office in a timely manner.

Please send a copy of the patent application as filed, serial number, and filing data as they become available to Nina Rhodes and keep her advised regarding the progress of the filing.

At this time I ask that your office track the patent filing fees and prosecution costs for the subject application and keep our office informed of the expenditures required.

Sincerely,

Kathy Kaufman
for Karena McKinley
Director, Industrial Partnerships &
Commercialization

Attachment

cc: Kerry A. Bettencourt, L-223
Kevin C. O'Brien, L-795



Lawrence Livermore National Laboratory
Industrial Partnerships & Commercialization

Mr. William C. Daubenspeck
Office of Patent Counsel
U.S. Department of Energy
Oakland Operations Office
P.O. Box 808, L-376
Livermore, CA 94550

Subject: NOTICE OF ELECTION TO RETAIN TITLE TO DEFENSE
PROGRAM INVENTION UNDER CLASS WAIVER W(C)-92-002

Dear Mr. Daubenspeck:

Pursuant to the terms of Contract W-7405-ENG-48 between the Department of Energy (DOE) and the Regents of the University of California (University), and subject to Class Waiver W(C)-92-002, we submit an Election Memorandum for the following invention:

DOE Case No. S-94234
LLNL Docket No. IL-10632
Dielectrophoretic Concentration of Particles under Electrokinetic Flow
Inventors: Robin R. Miles, Christopher K. Fuller, Kerry A. Bettencourt

The University has reviewed the subject invention disclosure with respect to: (1) export control; (2) United States preference/competitiveness; and (3) adverse impact upon the Naval Nuclear Propulsion Program and other nuclear and/or atomic energy defense activities of the Department of Energy and agrees to comply with all statutes and regulations governing export control, U.S. preference/competitiveness, and the Naval Nuclear Propulsion Program, et al., in dealing with the subject inventions. (A copy of the Invention Disclosure including a Classification Review, and an original signed Export Control Review for Licensing and Patents form are attached to the enclosed Election Memorandum.)

Further, the University agrees to comply with Clause 66.1.F governing technology transfer activities under Contract Number W-7405-ENG-48.

Your prompt review of this Election Memorandum will be appreciated.

Sincerely,

Karena McKinley
for Karena McKinley
Director, Industrial Partnerships
& Commercialization

cc: Kerry A. Bettencourt, L-223
Kevin C. O'Brien, L-795
Janet G. Tulk, L-703

WAIVER LEGAL APPROVAL

Date:

IL File No: 10632

Document Type:

- DP Class Waiver
- Election Letter

- CRADA - Class Waiver
- Ext. of Time (Class Waiver)

Description: _____

RECEIVED

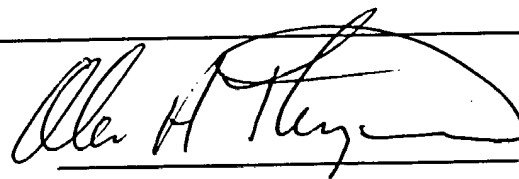
LLNL-I.P.L.G.

Document needs the following:

- X Legal/Patent Review _____
- _____ Additional Approval(s) _____
- _____ Other _____

Reviewer comments: _____

Approved as to Legal Form



Signature

Date

Return to: Name: Sara Sanders

Extension: 3-0381

L-Code: 795

☐ Please Call for Pick-up

X-Sender: e03a497@popsicle.llnl.gov
Date: 16:14:22 -0700
To: thompson52@llnl.gov
From: Bert Weis <weis1@llnl.gov>
Subject: Microfluidics Cases

Hi Al:

Here are the top six cases of this portfolio from Engineering. They rank-ordered a total of 12 cases for me. I also have a list of four cases from NAI, but didn't include any of these, partly because I am not sure if the offer to pick up part of the tab includes NAI. (They may not have any money). But one of the cases is 10629 (The magnetohydrodynamic mini-centrifuge), which people really liked, although it is different from the other cases below.

The following is a list of top six cases belonging in the Engineering portfolio. All cases were rated as priority one during the reviews. They are presented in the order they were ranked. Please note that many of these cases have Robin Miles as an inventor. (Robin has decided to leave the Laboratory and join Cepheid.)

Bud 1. IL-10632 Robin Miles et al
Dielectrophoretic Concentration of Particles under Electrokinetic Flow.
(This is done by causing a fluid, which carries particles at a low concentration, to flow over a series of interdigitated electrodes by applying a DC field across the entire device structure. An AC field is applied to the electrodes. This causes the particles carried by the fluid to become trapped and concentrated between the electrodes. The particles can then be released by turning off the AC field at a desired point in time.)

Chris Fuller
- Paper -

Bud 2. IL-10416 Robin Miles et al.
Use of Impedance Measurements to detect the Endpoint of DNA Amplification.
(An enzyme releases an ionic rather than a fluorescent tag at the amplification endpoint. This causes the impedance of the fluid to change which can be detected less expensively, thus simplifying the instrumentation and making the equipment more economical.)

No RDP
Chris Fuller
Lynntech
close process
RTP

3. IL-10404 Robin Miles. Use of Impedance Measurements to Detect the Presence of Pathogens trapped in Electric Fields.
(Impedance measurements is used to detect and measure particles concentrated between the electrodes, providing a means to monitor what is going on.)

Chris Fuller

4. IL-10406 Robin Miles et al. Use of Impedance Measurements to Detect the Presence of Pathogens Attached to Antibody-Coated Beads.
(Here they exploit the fact that impedance changes when particles attach to the beads which are coated to bind them. Measurement of the impedance provides information as to presence and concentration of the pathogens.)

Chris Fuller

5. IL-10373 Robin Miles et al. Stepped Electrophoresis for Movement and Concentration of DNA.

(Apparatus similar to that of #1, except that there are individual electrodes, which can be charged individually or in groups to be able to herd to trapped particles by manipulating the electric fields.)

RTP

Published by LDD

6. IL-10331 Robin Miles. Movement of Particles Using Sequentially Activated Dielectrophoretic Particle Trapping.

(Similar to #5. But specifically mentions sequentially trapping and moving the particles and has greater detail regarding the apparatus for accomplishing it.)

NO +.st
NO RTP



University of California
Lawrence Livermore National Laboratory
Intellectual Property Law Group

Mail Station: L-703

Extension: 2-7273

Interoffice Memorandum

TO: Chris Fuller L-223

FROM: L.E. Carnahan

SUBJECT: LLNL Docket No.: IL-10,632
"Dielectrophoretic Concentration of Particles
Under Electrokinetic Flow"

Enclosed is a modified draft of a patent application forward to you or covering the above-identified invention for review by yourself and other co-inventor R. Miles and K. Bettencourt. It is understood that Robin Miles is no longer at LLNL.

Please fill in the blanks and make any additions or changes needed to fully describe the invention. If the invention has been described in any report or paper, please provide a copy, and if published also provide the date and place of publication.

In view of the high interest in the invention, return of the draft, along with comments **within three weeks** after receipt thereof is requested.

Teresa Walls for
L.E. Carnahan, Patent Advisor

LEC:tw
Enclosure

X-Sender: e10a444@poptop.llnl.gov
Date: Mon, 14:36:18 -0700
To: Teresa Walls <walls4@llnl.gov>
From: Kathy Berson <bereson1@poptop.llnl.gov>
Subject: Re: Small or Large Entity

Teresa,
These are all small.
>Kathy,
>Are these small or large entity
>IL-10697,
>IL-10661
>IL-10632
>Thanks,
>Teresa

Kathy L. Berson
bereson1@llnl.gov
Lawrence Livermore National Laboratory
PO Box 808, Mail Stop L-795
Livermore, Ca 94551-0969
510-422-2111 voice
510-423-8988 fax



Department of Energy
Oakland Operations Office
Office of Chief Counsel
Intellectual Property Law Division

Livermore Office
P.O. Box 808, L-376
Livermore, CA 94550
(925) 422-4367
FAX (925) 422-8228

Karena McKinley
Director, Industrial Partnership and Commercialization
Lawrence Livermore National Laboratory, L-001
c/o Sara Sanders, LLNL-TTIP, L-795

RECEIVED

LLNL-I.P.L.G.

SUBJECT: DOE Patent Case: S-94,234
Title: Dielectrophoretic Concentration of Particles under
Electrokinetic Flow
✓ Docket No.: IL-10632
DOE Contract No: W-7405-ENG-48
Waiver No.: W(C)-92-002-721

Your transmittal to this office of the subject class waiver is acknowledged with appreciation.

The class waiver has been assigned the W(C) number identified above. Your reference to this number in future communications with this office will be helpful.

Very truly yours,

Janet L. Rego
Legal Instruments Examiner

Copy to: Janet G. Tulk, LLNL, L-703

JLR:wkc



Department of Energy
Oakland Operations Office
Office of Chief Counsel
Intellectual Property Law Division

Livermore Office
P.O. Box 808, L-376
Livermore, CA 94550
(925) 422-4367
FAX (925) 422-8228

Karena D. McKinley
Director, Industrial Partnership and Commercialization
Lawrence Livermore National Laboratory, L-795
c/o Sara Sanders, LLNL-TTIP, L-795

✓ **Re: Approval of Election by LLNL under DOE Waiver W(C) 92-002-721**
DOE Inven. Case No.: S-94,234
LLNL Inven. Docket No.: IL-10632
Inventor(s): Robin Miles et al.
Invention Title: Dielectrophoretic Concentration of Particles under Electrokinetic Flow

Dear Ms. McKinley:

Enclosed with this letter is a copy of the LLNL Election Memorandum for the above-identified invention. It has the signatures of the appropriate DOE officials approving LLNL's election. The effective date of DOE's approval is _____

Please have the LLNL Patent Group forward to this office a copy of each patent application filed on the referenced invention and a copy of any issued patents thereon.

Furthermore, have LLNL's Industrial Partnerships and Commercialization Program periodically provide this office with information demonstrating LLNL's commercialization efforts for the subject invention as required by Contract No. W-7405-ENG-48.

Respectfully,

William C. Daubenspeck
Patent Attorney

Enclosure

Copy to: Michael A. Wahlig, DOE-OAK, L-293 (w/o encl)
Janet G. Tulk, LLNL, L-703
Robin Miles, LLNL, L-223 w/o encl)
Kerry Bettencourt, LLNL, L-223 (w/o encl)
Christopher Fuller, LLNL, L-223 (w/o encl)
Betty Winchester, DOE-HQ/Patents (w/o encl)

WCD:JLR:wkc

CONTAINS PROPRIETARY INFORMATION

ELECTION MEMORANDUM

DATE:

SUBJECT: Notice of Election to Retain Title to the Following Defense Program
Subject Invention Under Class Waiver W(C)-92-002

FROM: LLNL Industrial Partnerships & Commercialization, L-795
Nina Rhodes/Sara Sanders, Administrators, (925) 422-6416

TO: Assistant Chief Counsel for Patents, DOE/OAK

DOE NO: S-94,234

DATE REPORTED TO DOE:

FIRST NAMED INVENTOR: Robin Miles

INVENTION TITLE: Dielectrophoretic Concentration of Particles
under Electrokinetic Flow

B&R NUMBER: YN01

DOE PROGRAM OFFICIAL: N/A

A copy of the Subject Invention Disclosure is attached hereto.

The Regents of the University of California (UC) hereby elects to retain title to the Subject Invention, under the terms and conditions of the Statement of Consideration of Class Waiver W(C)-92-002, in the United States and such foreign countries as may be determined. We will advise DOE of any foreign filing decisions and actions taken by the University.

UC hereby represents that it has conducted a reasonable internal inquiry, and as a result, it has determined that the Subject Invention falls within the Class Waiver. UC has further determined that the Subject Invention does not fall within international agreements or treaties of the U.S. Government.

UC further represents that it will attempt to commercialize the Subject Invention through its licensees within five (5) years from the time this election is effective. UC

agrees to file, prosecute, and maintain those patent applications and issued patents on the Subject Invention which are necessary to effectively fulfill its obligations under the subject Class Waiver and its Technology Transfer Agreement entered into with the Department of Energy (DOE) on January 23, 1991, under Contract No. W-7405-ENG-48.

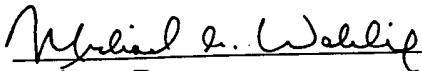
UC has provided for the following safeguards for the protection of national security while commercializing the Subject Invention:

UC further represents that it has determined that the technology has been reviewed for export control. See the attached Export Control Review for Patents and Licensing form attached hereto and incorporated herein as if fully set forth. UC further represents that it will inform all licensees of any requirements or limitations on export of the technology.

In making its determination that the Subject Invention falls within the subject Class Waiver, UC has concluded, through its Program and Technology Transfer Offices, that national security will not be compromised by the development, commercialization or licensing activities involving the invention; that no sensitive technical information (classified or unclassified) under any of DOE's programs will be released to unauthorized persons; that the dissemination of the technology will not contribute to the proliferation of nuclear weapons; and that there will be no adverse effect on the operation of the Naval Nuclear Propulsion Program or the Nuclear Weapons Program or other defense activities of DOE by UC taking title.


UC understands that an election of Defense Programs funded inventions is not effective until approval by the DOE Assistant Chief Counsel for Intellectual Property and concurrence by the Defense Programs Field Review Official is obtained.

CONCURRENCE:


Defense Programs

Date: _____

APPROVAL:


William C. Daubenspeck
for Asst. Chief Counsel for Patents, OAK

Effective Date: _____



Dear Robin,

I'm sending you a copy of IL-10404 which was sent to your prior address. And I'm sending you a copy of IL-10632 which was sent to Chris Fuller here at the Lab and Bud Carnahan thought I should also sent it to you.
Also a copy of drawing for IL-10416

Thank You,

A handwritten signature in cursive script that reads "Teresa Walls".

Teresa Walls
Intellectual Property Law Group

925-432-7273



Recycled



University of California
Lawrence Livermore National Laboratory
Intellectual Property Law Group

Mail Station: L-703

Extension: 2-7273

Interoffice Memorandum

TO: Chris Fuller

L-223

FROM: Teresa Walls

wrong address!

SUBJECT: IL-10632

Dielectrophoretic Concentration of Particles Under Electrokinetic Flow

Enclosed is a copy of your above referenced patent application. The information in the patent application may be of a confidential nature and you are advised not to release any of the information contained therein without prior approval from this office, unless it is already available to the public. The Patent and Trademark Office does not allow public access to pending applications.

Also enclosed are two different forms for your signature and dating, "Combined Declaration and Power of Attorney" and "Assignment." After signing them, please forward the forms to Kerry A. Bettencourt for execution. Please return the forms to me at L-703 and I will file them with the Patent and Trademark Office.

Thank you for your courtesy.

Sincerely,

Teresa Walls
Intellectual Property Law Group

Enclosures:

CIL-10632 Patent Application
Combined Declaration and Power of Attorney
Assignment

Intellectual Property Law Group
(925) 423-9034

Robin R. Miles
80 Kendall lane
Danville, CA 94526

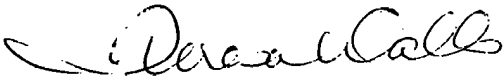
Re: IL-10632
"Dielectrophoretic Concentration of Particles Under Electrokinetic Flow"

Dear Robin Miles:

Enclosed is a copy of your above referenced patent application. The information in the patent application may be of a confidential nature and you are advised not to release any of the information contained therein without prior approval from this office, unless it is already available to the public. The Patent and Trademark Office does not allow public access to pending applications.

Also enclosed are two different forms for your signature and dating, "Combined Declaration and Power of Attorney" and "Assignment.". Please return the forms to me at L-703 and I will file them with the Patent and Trademark Office.

Very truly yours,



Teresa Walls
Intellectual Property Law Group

Enclosures

CLASSIFICATION REVIEW TRANSMITTAL

To: Mike Pocha
L-222

From: Teresa Walls
Intellectual Property Law Group
L-703

Subject: Patent Application:
(1) Authorized Derivative Classifier Determination
prior to
Classification and Export Control Review

For: IL-10632
"Dielectrophoretic Concentration of Particles Under Electrokinetic Flow"

Date
Transmitted:

COMMENTS:

This patent application is being sent to you for ADC review because you reviewed the Disclosure, Record of Invention before submission. Please return as soon as possible in order that we may file this application with the U.S. Patent and Trademark Office

Thank you.



University of California
Lawrence Livermore National Laboratory

Mail Station: L-703

Extension: 2-7273

Interoffice Memorandum

TO: Chris Fuller

FROM: Teresa Walls

SUBJECT: IL-10632
Dielectrophoretic Concentration of Particles Under Electrokinetic Flow

Enclosed is a copy of your above referenced patent application. The information in the patent application may be of a confidential nature and you are advised not to release any of the information contained therein without prior approval from this office, unless it is already available to the public. The Patent and Trademark Office does not allow public access to pending applications.

Also enclosed are two different forms for your signature and dating, "Combined Declaration and Power of Attorney" and "Assignment. Please return the forms to me at L-703 and I will file them with the Patent and Trademark Office.

Thank you for your courtesy.

Sincerely,



Teresa Walls
Intellectual Property Law Group

Enclosures:

CIL-10632 Patent Application
Combined Declaration and Power of Attorney
Assignment



University of California
Lawrence Livermore National Laboratory
Intellectual Property Law Group

Mail Station: L-703

Extension: 2-7273

Interoffice Memorandum

TO: Kerry Bettencourt

L-223

FROM: Teresa Walls

SUBJECT: IL-10632

Dielectrophoretic Concentration of Particles Under Electrokinetic Flow

Enclosed is a copy of your above referenced patent application. The information in the patent application may be of a confidential nature and you are advised not to release any of the information contained therein without prior approval from this office, unless it is already available to the public. The Patent and Trademark Office does not allow public access to pending applications.

Also enclosed are two different forms for your signature and dating, "Combined Declaration and Power of Attorney" and "Assignment. Please return the forms to me at L-703 and I will file them with the Patent and Trademark Office.

Thank you for your courtesy.

Sincerely,

Teresa Walls
Intellectual Property Law Group

Enclosures:

CIL-10632 Patent Application
Combined Declaration and Power of Attorney
Assignment

CLASSIFICATION REVIEW TRANSMITTAL

To: Bill Fritchie
Classification Office
L-302

From: Teresa Walls
Patent Group
L-703

Subject: Patent Application:
Classification Review Requested Yes ☒ No ☐
Export Control Review Requested Yes ☒ No ☐
New Application

For: S-94,234
IL-10632
" Dielectrophoretic Concentration of Particles Under Electrokinetic Flow
Transmitted:

COMMENTS:

Bill,

Please review and return

Thank you.



University of California
Lawrence Livermore National Laboratory

Classification Review of Patent Application

Docket Number:	IL-10632
Unclassified Title: (U)	Dielectrophoretic Concentration of Particles Under Electrokinetic Flow
Inventors:	Robin R. Miles, Kerry A. Bettencourt, Christopher K. Fuller

Authorized Derivative Classifier Determination	
<input checked="" type="checkbox"/> Unclassified <input type="checkbox"/> Unclassified, but Controlled <input type="checkbox"/> UCNI Other: _____ <input type="checkbox"/> UCNI Reviewing Official Determination is required <input type="checkbox"/> Classified - Level and Category	
Specify Authority (Guide/Topics): _____	
If NSI, Review/Declassify on (Date or Event): _____	
Additional markings Required:	Weapon Data - Sigma(s): _____ Other: _____
ADC Name: <i>M. D. POCHA</i>	ADC Title: <i>SECTION LEADER</i>
ADC Signature: <i>M. D. Pocha</i>	Date: _____

UCNI Reviewing Official Determination (If requested)	
<input type="checkbox"/> The application does <i>not</i> contain UCNI. <input type="checkbox"/> The application <i>may</i> contain UCNI. <input type="checkbox"/> The application <i>does</i> contain UCNI.	
Reviewing Official Signature: _____	Date _____

Classification Office Confirming Review	
<input type="checkbox"/> The ADC's determination is correct. <input type="checkbox"/> The Inventor's determination is correct.	
The correct classification is: _____	
Reviewing Official Signature: _____	Date _____



University of California
Lawrence Livermore National Laboratory



Interdepartmental Letterhead

Mail Station L-312

EC-99-255

Ext: 4-3483

To: Terry Contreras, L-703

From: William R. Fritchie

Subject: Export Control Review for IL-10632 "Dielectrophoretic Concentration of Particles under Electrokinetic Flow"

Review of Regulations. An export control review of the subject technology was conducted using the following applicable regulations:

Nuclear Regulatory Commission (NRC). This technology is export controlled as Sensitive Technology under the NRC Regulations (10 CFR Part 110), dated : Yes___ No_X_
[web site: http://www.access.gpo.gov/nara/cfr/waisidx_99/10cfr110_99.html]

Department of Energy (DOE). This technology is export controlled as Sensitive Technology under the DOE Regulations (10 CFR Part 810), dated Yes___ No_X_
[web site: http://www.access.gpo.gov/nara/cfr/waisidx_99/10cfr810_99.html]

Department of State (DOS). This technology is export controlled under the DOS International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130), dated Yes___ No_X_
[web site: http://www.access.gpo.gov/nara/cfr/waisidx_99/22cfrv1_99.html]

Department of Commerce (DOC). This technology is export controlled under the DOC Export Administration Regulations (EAR) (15 CFR Parts 730-774) dated Yes_X_ No___
[web site: http://www.access.gpo.gov/bxa/ear/ear_data.html]

Narrative. This technology is export controlled by the DOC EAR (15 CFR Part 774, Category 6, specifically ECCN EAR99), and requires no license for export, subject to the following caveat:

This technology may not be exported to individuals on the current Denied Persons List (15 CFR Part 764, Supplement 2) or to the presently embargoed countries of Cuba, Libya, North Korea, Iran, Iraq, Rwanda, Liberia, Somalia and Yugoslavia (15 CFR Part 746).

Separate license requirements may apply for the export of commodities associated with this technology. For additional licensing guidance, contact Lou Hill (Traffic/Shipping) at 424-4201.

William R. Fritchie
Classification Adviser

cc: Nancy Stone, L-703
Sara Sanders, L-795

Classification Review of Patent Application

Docket Number:	IL-10632
Unclassified Title: (U)	Dielectrophoretic Concentration of Particles Under Electrokinetic Flow
Inventors:	Robin R. Miles, Kerry A. Bettencourt, Christopher K. Fuller

Authorized Derivative Classifier Determination

<input checked="" type="checkbox"/> Unclassified <input type="checkbox"/> Unclassified, but Controlled <input type="checkbox"/> UCNI Other: _____ <input type="checkbox"/> UCNI Reviewing Official Determination is required <input type="checkbox"/> Classified - Level and Category	
Specify Authority (Guide/Topics): _____	
If NSI, Review/Declassify on (Date or Event): _____	
Additional markings Required:	Weapon Data - Sigma(s): _____ Other: _____
ADC Name: <i>M. D. POCHA</i>	ADC Title: <i>SECTION LEADER</i>
ADC Signature: <i>M. D. Pocha</i>	Date: _____

UCNI Reviewing Official Determination (If requested)

<input type="checkbox"/> The application does <i>not</i> contain UCNI. <input type="checkbox"/> The application <i>may</i> contain UCNI. <input type="checkbox"/> The application <i>does</i> contain UCNI.	
Reviewing Official Signature: _____	Date _____

Classification Office Confirming Review

<input checked="" type="checkbox"/> The ADC's determination is correct. <input type="checkbox"/> The Inventor's determination is correct.	
The correct classification is: _____	
Reviewing Official Signature: <i>William R. Fritchie</i>	Date _____

William R. Fritchie
Classification/Export Control Adviser



University of California
Lawrence Livermore National Laboratory

CLASSIFICATION REVIEW TRANSMITTAL

To: Bill Fritchie
Classification Office
L-302

From: Teresa Walls
Patent Group
L-703

Subject: Patent Application:
Classification Review Requested
Export Control Review Requested
New Application

Yes ☒ No ☐

Yes ☒ No ☐

*EC Review
a Handled*

For: S-94,234
IL-10632

" Dielectrophoretic Concentration of Particles Under Electrokinetic Flow
Transmitted:

COMMENTS:

Bill,

Please review and return

Thank you.



University of California
Lawrence Livermore National Laboratory



University of California
Lawrence Livermore National Laboratory
Office of Patent Counsel

— —
Mail Station: L-703

Extension: 2-7273

Interoffice Memorandum

TO: Janet Rego L-376
Nina Rhodes L-795

FROM: Teresa Walls

SUBJECT: IL-10632
Dielectrophoretic Concentration of Particles Under Electrokinetic Flow

Enclosed, for your records, is a copy of the Patent Application, Assignment, Recordation Cover Sheet, and Return Postcard.

If you have any questions, please do not hesitate to call.

Teresa Walls
LLNL Patent Group

Enclosure
As Noted



University of California
Lawrence Livermore National Laboratory
Office of Patent Counsel

Mail Station: L-703

Extension: 2-7273

Interoffice Memorandum

TO: Nancy Stone

FROM: Teresa Walls

SUBJECT: USE OF PATENT GROUP DEPOSIT ACCOUNT (12-0695)

As of this date, I have charged the following amount(s) to the Patent Group deposit account:

<u>Amount</u>	<u>IL Number</u>	<u>Attorney</u>	<u>Type of Action</u>
\$40.00	IL-10632	AT	Fee for Filing New Application
<u>\$355.00</u>			New Application Transmittal (Small Entity)
\$395.00 Total			





Department of Energy
Oakland Operations Office
Office of Chief Counsel
Intellectual Property Law Division

Livermore Office
P.O. Box 808, L-376
Livermore, CA 94550
(925) 422-4367
FAX (925) 422-8228

RECEIVED

Janet G. Tulk, LLNL Laboratory Counsel, L-703

LLNL - I.P.L.G.

REGARDING: DOE Case No.: S-94,234
U.S. Patent Application S.N: 09/733,857
Filing Date:
Invention Title: Dielectrophoretic Concentration of Particles Under
Electrokinetic Flow
Contractor's Docket No.: IL-10632
Reported Under Contract No.: W-7405-ENG-48
Inventor(s): Robin R. Miles et al.
DOE Waiver No.: W(C) 92-002-721

SUBJECT: Confirmatory License

Dear Ms Tulk:

The request for waiver of Government rights in the above-identified invention was approved, effective

In accordance with Contract Number W-7405-ENG-48, a Confirmatory License acknowledging the U.S. Government's license in the subject invention is enclosed for execution on behalf of the University and return to this office. Your prompt attention to this matter is appreciated.

Sincerely,

William C. Daubenspeck
Patent Attorney

Enclosures: Confirmatory License (2)

cc: Sara Sanders, LLNL, L-795

WCD:JLR:wkc

CONFIRMATORY LICENSE

Title: Dielectrophoretic Concentration of Particles
Under Electrokinetic Flow
Inventor(s): Robin R. Miles et al.
Contract Number: W-7405-ENG-48
Contractor: Regents of the University of
California

DOE Docket No.: S-94,234
Docket No.: IL-10632
U.S. Patent Application S.N.: 09/733,857
Filing Date:
Waiver No.: W(C) 92-002-721

Foreign patent applications filed or intended to be filed at contractor's expense in (countries):

The Contractor certifies that a true copy of the provisions which govern patent rights in "subject inventions" under the above-identified contract is herewith submitted or has been submitted to the U.S. Department of Energy by certification dated

WHEREAS, the above-identified invention is a subject invention under the above-identified contract;

WHEREAS, the Class Waiver W(C) 92-002-721 of Government rights in certain identified inventions and the above-identified contract provides the Contractor with the right to elect to retain title in certain subject inventions and the Contractor has elected to retain title in the above-identified subject invention, EXCEPT FOR a paid-up license under the above-identified contract and the above-identified waiver, effective August 23, 2000.

ACCORDINGLY, the Contractor hereby confirms that under the provisions of the above-identified contract governing patent rights, it has granted to the Government a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world. This license applies to the above-identified invention, the above-identified patent application(s), and any and all divisions or continuations thereof and any resulting patent or reissue patent which may be granted thereon.

The Government reserves for itself, and is hereby granted by the Contractor, the irrevocable power to inspect and make copies of the file wrapper(s) of the above-identified U.S. patent application and of any related or continuation patent application(s), whether domestic or foreign, for the above-identified invention.

It is understood and agreed that this instrument does not preclude the Government from asserting rights under the provisions of the above-identified contract or any other agreement between the Government and the Contractor, or any other rights of the Government with respect to the above-identified invention.

Signed on behalf of: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
(Contractor)

Witness:

Nancy J. Stone
(Signature)

By:

Janet G. Tulk
(Contractor Official's Signature)

(Date)

Nancy J. Stone, Administrative Assistant
(Name and Title)

Janet G. Tulk, Laboratory Counsel
(Print/Type Contractor Official's Name and Title)

Lawrence Livermore National Laboratory
(Print/Type Contractor's Address)

P. O. Box 808, L-701

Livermore, CA 94551-0808